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N.C. State Building Code Volume
III Heating, Air-conditioning,
Refrigeration & Ventilation
1980 Edition Amendments Adopted
Thru December 1982

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Accumulative Supplement to the

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VOLUME III

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ENGINEERING DIVISION
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Section 202 (6-9-82)
Revise definition to read as follows:

"Water Heater—An appliance for supplying hot water for domestic or commercial purposes. It may be used for space heating if the water temperature does not exceed 150°F."

Section 303 (b) (12-9-80)
Delete and add the following:
"See Section 2903 (b) of Volume I for access to equipment (such as furnaces, appliances, controls, electric strip heaters, all dampers, electronic air cleaners, coils and so forth.

Section 505.1 (b) (12-9-80)
Revise to read as follows:
(b) Factory built solid fuel type stoves and room heaters (Radiant and Circulating) shall be installed with a clearance of 36 inches from the top, front, back and sides of the equipment to combustible materials. Stoves and heaters which are installed in rooms which are large in comparison with the size of the stove or heater may be installed with reduced clearances provided the combustible material is protected in accordance with Table 505.1(b). The manufacturer shall furnish with each stove or heater, installation instructions specifying clearances and mounting instructions as called for in this section.

TABLE 505.1(b)

TYPE OF PROTECTION	REQUIRED CLEARANCE WITH NO PROTECTION				
Applied to and covering combustible materials within the distance specified as required clearance with no protection (See Fig. 305.1)	36″		18″		18′
	TOP SIDES	REAR	TOP SIDES	REAR	SINGLE WALL CONNECTOR
a. 28 gauge sheet metal space out a minimum of 1 inch	18	12	9	6	9
b. 3½″ thick masonary wall spaced out a minimum of 1 inch and adequately tied to wall being protected (See Note 4)	N/A	12	N/A	6	9
c. 22 gauge sheet metal on 1″ mineral wool batts reinforced with wire or equivalent spaced out a minimum of 1″	18	12	4	3	3

NOTES:

1. Spacers and ties shall be of noncombustible material and be located 16″ o.c.
2. All methods of protection require adequate ventilation between the protection material and adjacent combustible walls and ceilings.
3. Mineral wool batts (blanket or board) shall have a minimum density of 8# per cubic foot and a minimum melting point of 1500°F.
4. If a single wall connector passes thru a protective masonry wall, there shall be at least ½ inch of open ventilated air space between the connector and the masonry.
5. Clearances in front of stove or heater shall not be reduced to less than 36 inches.

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Section 505.1(c) (12-9-80)
Revise to read as follows:
(c) Connectors shall be used to connect heaters and stoves to the vertical chimney unless the chimney is connected directly to the unit. Connectors shall be galvanized steel pipe meeting the thickness requirements of Table 505.1(c) or listed factory built chimney. Single wall connectors shall not pass through an attic or other non-occupied space. Connectors serving solid fuel burning equipment shall not be connected to a chimney flue serving equipment burning other fuels, or serving a fireplace unless the fireplace opening is sealed or the chimney flue is permanently sealed below the connection. Connectors shall not connect to a chimney in an attic. Connectors shall be installed with a minimum pitch of ¼″ per foot from the heating equipment to the chimney. Connectors shall be as short as possible with non-combustible supports a minimum of every 4 feet and with a minimum of 3 screws or rivets per joint.

TABLE 505.1 (c)

Steel Connectors	
Diameter of Connector	Minimum Gage
Less than 6″	26
6″ to 10″	24
12″ to 16″	22
over 16″	16

Section 505.1(d) (12-9-80)
Revise to read as follows:
(d) Unlisted solid fuel burning stoves and room heaters having less than 2 inches of ventilated open space beneath the fire chamber or base of the unit shall be mounted only on floors of combustible fire resistive construction extending not less than 18 inches beyond all sides of the unit and with no combustible material against the underside thereof. All other unlisted solid fuel burning stoves and room heaters shall have combustible floors protected in accordance with the following:

(1) Units having a ventilated open space of 2″ to 6″ beneath the fire chamber or base shall have combustible flooring protected by a minimum of 4 inch hollow masonry laid to provide air circulation through the masonry cores. The top of the masonry units shall be covered with minimum 24 gage sheet metal. The masonry floor protection shall extend not less than 18 inches on all sides of the unit. (When installed on non-combustible floor, such floor shall extend not less than 18 inches on all sides of the unit.)

(2) Units having over 6 inches of ventilated open space beneath the fire chamber or base of the unit shall have the combustible floor protected with closely spaced masonry units of brick, concrete, or stone providing a minimum thickness of not less than 2 inches. Masonry protection shall be either covered or placed over 24 minimum gage sheet metal. The masonry floor protection shall extend not less than 18 inches on all sides of the unit. (When installed on non-combustible floor, such floor shall extend not less than 18 inches on all sides of the unit.)

Add new paragraph (e) to read as follows:

(1) Stove mats, floor pads and protection shields shall be listed and installed in accordance with the terms of their listing.

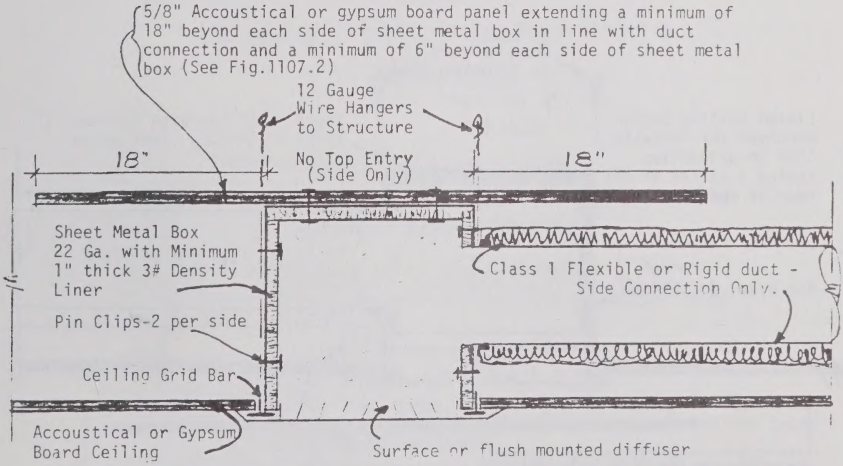
Section 602F, Page 6-2 (3-10-81)
Revise as follows:
In the first sentence, delete the words “woven asbestos”.

Conversion Burners, Page 14-20—Revise to read as follows:
Conversion Burners—
Installation of conversion burners shall conform to ANSI Standard Installation of Domestic Gas Conversion Burners, Z21.8-1971 and Addenda Z21.8a-1979, except that an automatic means to shut off the fuel supply to the burner(s) shall be provided in accordance with 1.4.7.7, NFPA-54-1972.

Section 604H, Exception No. 1 (12-14-82)
Revise Sub Item 2. to read as follows:
Ceiling supply outlets shall be protected in accordance with Section 1107(e)(2).

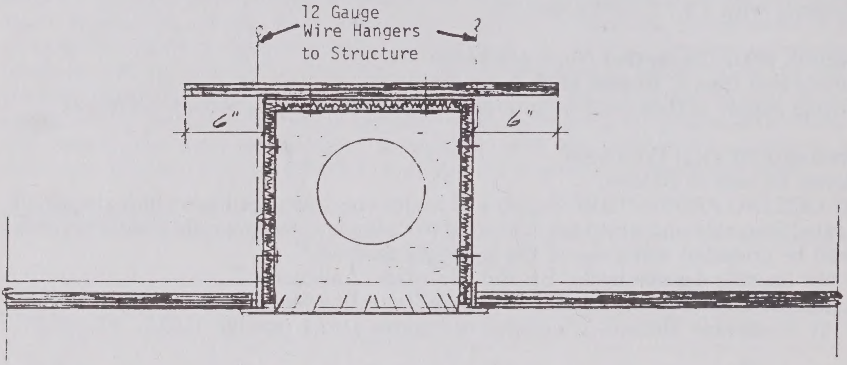
Section 1107(e)(2) (12-14-82)
Revise to read as follows:
(2) CEILING PROTECTION: Supply and return openings in ceilings which are part of a rated assembly and which are connected to a complete ductwork distribution system shall be protected using one of the following methods:
(A) Specific designs in the UL Fire Resistance Index, or
(B) UL Fire Resistance Index Alternate Protection Methods when applicable, or
(C) Protection Methods illustrated in Figures 1107.1 through 1107.7.

ONE (1) HOUR RATED
ROOF/CEILING & FLOOR/CEILING ASSEMBLIES
Supply or Return Openings

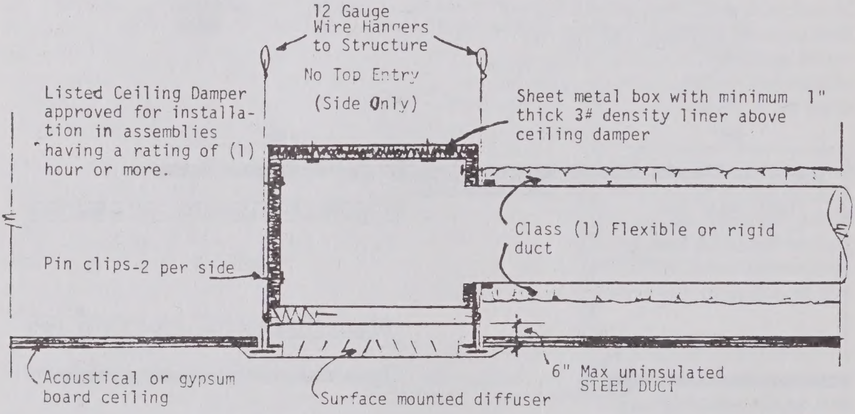

5/8" Accoustical or gypsum board panel extending a minimum of 18" beyond each side of sheet metal box in line with duct connection and a minimum of 6" beyond each side of sheet metal box (See Fig.1107.2)
12 Gauge Wire Hangers to Structure
18"
No Top Entry (Side Only)
18"
Sheet Metal Box 22 Ga. with Minimum 1" thick 3# Density Liner
Pin Clips-2 per side
Ceiling Grid Bar
Class 1 Flexible or Rigid duct - Side Connection Only.
Accoustical or Gypsum Board Ceiling
Surface or flush mounted diffuser

CROSS-SECTION THROUGH LONGITUDINAL CENTER-LINE OF AIR DUCT
Figure 1107.1

ONE (1) HOUR RATED
ROOF/CEILING & FLOOR/CEILING ASSEMBLIES
Supply or Return Openings



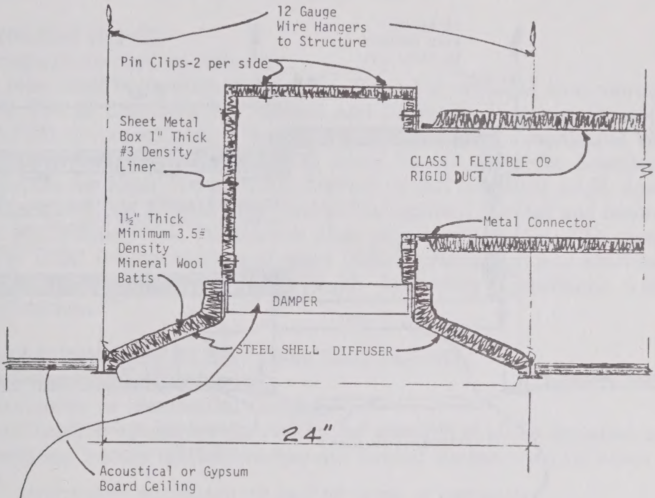
CROSS-SECTION THROUGH TRANSVERSE CENTER-LINE OF AIR DUCT OUTLET
Figure 1007.2


12 Gauge
Wire Hangers
to Structure
No Top Entry
(Side Only)
Listed Ceiling Damper approved for installation in assemblies having a rating of (1) hour or more.
Sheet metal box with minimum 1" thick 3# density liner above ceiling damper
Class (1) Flexible or rigid duct
Pin clips-2 per side
6" Max uninsulated STEEL DUCT
Acoustical or gypsum board ceiling
Surface mounted diffuser

CROSS-SECTION THROUGH LONGITUDINAL CENTER-LINE OF AIR DUCT
Figure 1107.3

ONE (1) HOUR RATED ROOF/CEILING & FLOOR/CEILING ASSEMBLIES

Supply or Return Openings


12 Gauge Wire Hangers to Structure
Pin Clips-2 per side
Sheet Metal Box 1" Thick #3 Density Liner
CLASS 1 FLEXIBLE OR RIGID DUCT
1½" Thick Minimum 3.5# Density Mineral Wool Batts
Metal Connector
DAMPER
STEEL SHELL
DIFFUSER
24"
Acoustical or Gypsum Board Ceiling

Listed ceiling damper approved for installation in assemblies having a rating of one hour or more.

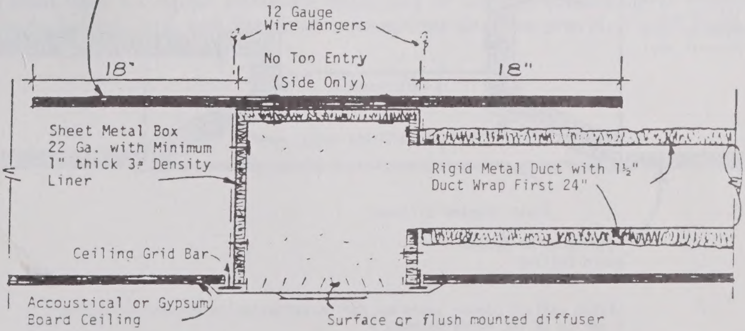
May also be used with damper assemblies detailed in U.L. Fire Resistance Index.

Figure 1107.4

TWO (2) HOUR RATED ROOF/CEILING & FLOOR/CEILING ASSEMBLIES

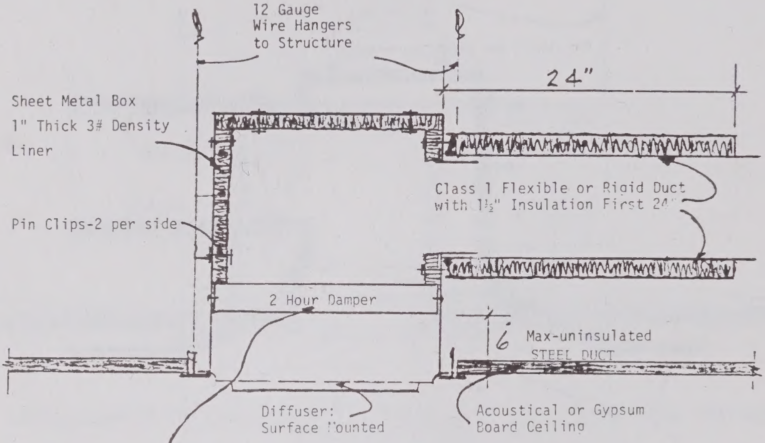
Supply or Return Openings

5/8" Accoustical or gypsum board panel extending a minimum of 18" beyond each side of sheet metal box in line with duct connection and a minimum of 6" beyond each side of sheet metal box


12 Gauge Wire Hangers
No Top Entry (Side Only)
18"
18"
Sheet Metal Box 22 Ga. with Minimum 1" thick 3# Density Liner
Rigid Metal Duct with 1½" Duct Wrap First 24"
Ceiling Grid Bar
Accoustical or Gypsum Board Ceiling
Surface or flush mounted diffuser

CROSS-SECTION THROUGH LONGITUDINAL CENTER-LINE OF AIR DUCT
Figure 1107.5

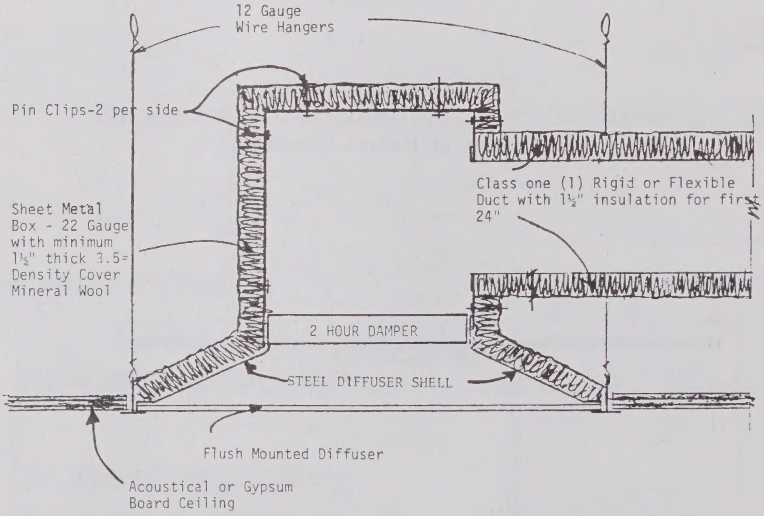
TWO (2) HOUR RATED
ROOF/CEILING & FLOOR/CEILING ASSEMBLIES
Supply or Return Openings



Listed ceiling Damper Approved for installation in Assemblies having a rating of TWO HOURS or More.

May also be used with Damper Assemblies detailed in U.L. Fire Resistance Index.

Figure 1107.6



Listed ceiling damper approved for installation in Assemblies having a rating of TWO HOURS OR MORE

May also be used with Damper Assemblies detailed in U.L. Fire Resistance Index.

Figure 1107.7

Section 1201(g) (6-9-82)
Revise section to read as follows:

"A hot water supply storage tank, fired or unfired, shall not be used as a heating boiler if the water temperature exceeds 150°F."

Section 1406.0(a) (6-9-82)
Revise paragraph to read as follows:

Pipe: Gas pipe shall be minimum schedule 40 steel or wrought iron complying with ANSI B36.10 Standard for Welded and Seamless Wrought Steel Pipe; ANSI/ASTM A53 Specification for Black and Hot Dipped, Zinc Coated Welded and Seamless Steel Pipe; ANSI/ASTM A106, Specification for Seamless Carbon Steel Pipe for High Temperature Service; or ANSI/ASTM A120, Specification for Black and Hot Dipped Zinc Coated (Galvanized) Welded and Seamless Steel Pipe for ordinary use. Aluminum alloy pipe shall comply with specifications ASTM B-241 (except the use of alloy 5456 is prohibited) and shall be suitably marked at each end of each length indicating compliance with ASTM specifications.**

Section 1412 Subsections 3.1.6(a) Page 14-12 (6-9-82)
Revise subsection to read as follows:

3.1.6 Installation in Residential Garages:

(a) Gas utilization equipment in residential garages shall be installed so that all burners and burner ignition devices are located not less than 18 inches above the floor.

Section 1501 (3-10-82)
Revise to read as follows:

All bathrooms in residential construction containing more than one water closet shall be provided with means of exhausting air to the outside.

Section 1705.0(b) (6-9-82)
Revise to read as follows:

When cooling equipment is installed in attics, between the ceiling and the floor or roof above, or other areas where condensate may create a safety hazard (Electrical Equipment, etc.), an auxiliary drain pan with separate drain line shall be installed under the entire equipment. In lieu of an auxiliary drain pan, a float switch may be added to the unit condensate pan and wired into the electrical or control circuit of the equipment in such a way that the equipment will be cut-off when excessive condensate accumulates in the pan. Equipment installed in upper floor areas of multi-story structures, shall have either an auxiliary drain pan or the top connection of equipment drain pans having high and low drain connections shall be provided with a separate drain line.